

REMARKS

Status Of Application

Claims 1-44 were pending in the application; the status of the claims is as follows:

Claims 22, 24-28, 30, 31, 33-35, and 37-43 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,225,940 to Ishii et al. ("Ishii").

Claims 1-21, 29, 32, 36, and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishii in view of U.S. Patent No. 6,493,027 B2 to Ohta et al. ("Ohta").

Claim 23 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishii in view of U.S. Patent No. 6,023,056 to Fiete et al. ("Fiete").

The acknowledgement, in the Office Action, of a claim for foreign priority under 35 U.S.C. § 119(a)-(d), and that the certified copy of the priority document has been received, is noted with appreciation.

The indication, in the Office Action, that the Examiner has no objections to the drawings filed on December 14, 2002 (should read December 14, 2001 which is the filing date of the application and that no drawings were filed on December 14, 2002), is noted with appreciation.

Claim Amendments

Claims 1, 8-10, 15, 16, 22, 28-32, 37, 43 and 44 have been amended to more specifically point out and distinctly claim the invention. These changes do not introduce any new matter.

Claims 17-21 and 33-36 have been canceled.

35 U.S.C. § 102(b) Rejection

The rejection of claims 22, 24-28, 30, 31, 33-35, and 37-43 under 35 U.S.C. § 102(b) as being anticipated by Ishii, is respectfully traversed based on the following.

Ishii shows an auto-focusing system using edge detection circuit 5. A focus evaluation value is determined from the detected edge data in an auto-focus area (col. 4, line 29-38). As shown in Figure 11, when on the small defocus branch (step #41 is no), it is determined if the evaluation value is less than three at step #61. If so, the motor driving circuit 12 is instructed to reduce the driving speed of the motor at step #63. If not, step #63 is bypassed. When the movement of the lens no longer reduces the evaluation value (step #67), an in-focus condition is determined (step #69).

Claim 22 has been amended to depend from claim 1 and thus includes every limitation of claim 1. In contrast to the cited references, claim 1 includes:

a calculator for detecting edges in an image in response to an instruction from said instructing part and calculating a first evaluation value indicative of the degree of achieving focus from said edges, and for detecting contrast of the said image and obtaining a second evaluation indicative of achieving focus from said contrast; and

a controller for driving said optical system while changing a driving speed on the basis of said first evaluation value and for determining an in-focus condition on the basis of said second evaluation value.

The cited references do not show or suggest using a first evaluation value based on edges and then using a second evaluation value based on contrast to determine the in-focus condition. To anticipate, the cited reference must show, expressly or inherently, every limitation of the claim. MPEP §2131. Therefore, the cited references do not anticipate claim 22 and claim 22 is patentably distinct from the cited references. Claims 24-27 and 30 are dependent upon claim 22, and thus include every limitation of claim 22. Therefore, the cited references do not anticipate claims 24-27 and 30, and claims 24-27 and 30 are patentably distinct from the cited references.

Claim 28 has been amended to depend from claim 8. Also in contrast to the cited references, claim 8 includes:

obtaining a first evaluation value indicative of the degree of achieving focus from said edges, and obtaining a second evaluation value of the degree of achieving focus from said contrast;
driving said optical system while changing a driving speed on the basis of said evaluation value; and
determining an in-focus condition on the basis of said second evaluation value.

The cited references do not show or suggest obtaining a first evaluation value based on edges and a second evaluation value based on contrast to determine the in-focus condition. Therefore, the cited references do not anticipate claim 28 and claim 28 is patentably distinct from the cited references. Claim 31 is also dependent upon claims 8. Therefore, the cited references do not anticipate claim 31 and claim 31 is patentably distinct from the cited references.

Claims 33-35 have been canceled.

Also in contrast to the cited references, claim 37 includes:

a controller for obtaining a driving amount of said optical system on the basis of said evaluation value,
wherein said driving amount is changed according to characteristics of said optical system, and wherein said driving amount is increased when the f-number of the optical system becomes larger.

The cited references do not show or suggest controlling driving of the optical system during auto-focusing where the driving amount increases as the f-number is increased. Therefore, the cited references do not anticipate claim 37 and claim 37 is patentably distinct from the cited references. Claims 38-42 are dependent upon claim 37, and thus include every limitation of claim 37. Therefore, the cited references do not anticipate claims 38-42 and claims 38-42 are patentably distinct from the cited references.

Also in contrast to the cited references, claim 43 includes:

obtaining a driving amount of driving said optical system on the basis of said evaluation value,
wherein said driving amount is changed according to the characteristics of said optical system, and wherein said driving amount is increased when the f-number of the optical system becomes larger.

As noted above, the cited references do not show or suggest controlling driving of the optical system during auto-focusing where the driving amount increases as the f-number is increased. Therefore, the cited references do not anticipate claim 43 and claim 43 is patentably distinct from the cited references.

Accordingly, it is respectfully requested that the rejection of claims 22, 24-28, 30, 31 and 37-43 under 35 U.S.C. § 102(b) as being anticipated by Ishii, be reconsidered and withdrawn.

35 U.S.C. § 103(a) Rejections

The rejection of claims 1-21, 29, 32, 36, and 44 under 35 U.S.C. § 103(a), as being unpatentable over Ishii in view of Ohta, is respectfully traversed based on the following.

Ohta suggest that a video camera may be used to capture a still image (col. 2, lines 29-32).

In contrast to the cited references, claim 1 includes:

a calculator for detecting edges in an image in response to an instruction from said instructing part and calculating a first evaluation value indicative of the degree of achieving focus from said edges, and for detecting contrast of the said image and obtaining a second evaluation indicative of achieving focus from said contrast; and

a controller for driving said optical system while changing a driving speed on the basis of said first evaluation value and for determining an in-focus condition on the basis of said second evaluation value.

As noted above with regard to claim 22, Ishii does not show or suggest these limitations. Ohta also does not suggest using a first evaluation value based on edges and then using a second evaluation value based on contrast to determine the in-focus condition. Therefore, neither of the cited reference shows or suggests these limitations. To support a *prima facie* case for obviousness, the combined references must show or suggest every limitation of the claim. MPEP §2143.03. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 1 and claim 1 is patentably distinct from the cited references. Claims 2-7 are dependent upon claim 1, and thus include every limitation of claim 1. Therefore, the cited references do not support a *prima facie* case for obviousness of claims 2-7 and claims 2-7 are patentably distinct from the cited references.

Also in contrast to the cited references, claim 8 includes:

- obtaining a first evaluation value indicative of the degree of achieving focus from said edges, and obtaining a second evaluation value of the degree of achieving focus from said contrast;
- driving said optical system while changing a driving speed on the basis of said evaluation value; and
- determining an in-focus condition on the basis of said second evaluation value.

As noted above with regard to claim 28, Ishii does not show or suggest these limitations. Ohta also does not suggest using a first evaluation value based on edges and then using a second evaluation value based on contrast to determine the in-focus condition. Therefore, neither of the cited reference shows or suggests these limitations. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 8 and claim 8 is patentably distinct from the cited references.

Also in contrast to the cited references, claim 9 includes:

- detecting edges and contrast in an image in response to an instruction of said preparation for image capturing;
- obtaining a first evaluation value indicative of the degree of

achieving focus from said edges, and obtaining a second evaluation value of the degree of achieving focus from said contrast;
driving said optical system while changing a driving speed on the basis of said evaluation value; and
determining an in-focus condition on the basis of said second evaluation value.

Neither Ishii nor Ohta suggests using a first evaluation value based on edges and then using a second evaluation value based on contrast to determine the in-focus condition. Therefore, neither of the cited reference shows or suggests these limitations. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 9 and claim 9 is patentably distinct from the cited references. Claims 29 and 32 are dependent upon claim 9, and thus include every limitation of claim 9. Therefore, the cited references do not support a *prima facie* case for obviousness of claims 29 and 32, and claims 29 and 32 are patentably distinct from the cited references.

Also in contrast to the cited references, claim 10 includes:

a first calculator for detecting edges in an image and calculating a first evaluation value indicative of the degree of achieving focus from said edges;
a second calculator for calculating contrast of said image and obtaining a second evaluation value indicative of the degree of achieving focus from said contrast; and
a controller for driving said optical system on the basis of said first and second evaluation values in response to an instruction of said preparation for image capturing,
wherein, irrespective of a focusing condition of said optical system, said controller determines a driving direction of said optical system by using said second evaluation value and calculates a driving amount of said optical system by using said first evaluation value.

As noted in Ishii at col. 7, lines 45-49, Ishii only uses the contrast evaluation when the defocus amount is so large the edges cannot be properly detected. In contrast, the apparatus of claim 10 determines the driving direction of the optical system using second (contrast) irrespective of the focusing condition of the optical system. Thus, the cited references do not show or suggest all of the limitations of claim 10 and do not support a

prima facie case for obviousness. Therefore, claim 10 is patentably distinct from the cited references. Claims 11-14 are dependent upon claim 10, and thus include every limitation of claim 10. Therefore, the cited references do not support a *prima facie* case for obviousness of claims 11-14 and claims 11-14 are patentably distinct from the cited references.

Also in contrast to the cited references, claim 15 includes:

- obtaining a first evaluation value indicative of the degree of achieving focus from said edges;
- obtaining contrast of said image;
- obtaining a second evaluation value indicative of the degree of achieving focus from said contrast;
- determining, irrespective of a focusing condition of said optical system, a driving direction of said optical system by using said second evaluation value; and
- obtaining a driving amount of said optical system by using said first evaluation value.

As noted above, Ishii only uses the contrast evaluation when the defocus amount is so large the edges cannot be properly detected. In contrast, the apparatus of claim 15 determines the driving direction of the optical system using second (contrast) irrespective of the focusing condition of the optical system. Thus, the cited references do not show or suggest all of the limitations of claim 15 and do not support a *prima facie* case for obviousness. Therefore, claim 15 is patentably distinct from the cited references.

Also in contrast to the cited references, claim 16 includes:

- obtaining a first evaluation value indicative of the degree of achieving focus from said edges
- obtaining contrast of said image;
- obtaining a second evaluation value indicative of the degree of achieving focus from said contrast;
- determining, irrespective of a focusing condition of said optical system, a driving direction of said optical system by using said second evaluation value; and

obtaining a driving amount of said optical system by using said first evaluation value.

As noted above, Ishii only uses the contrast evaluation when the defocus amount is so large the edges cannot be properly detected. In contrast, the apparatus of claim 16 determines the driving direction of the optical system using second (contrast) irrespective of the focusing condition of the optical system. Thus, the cited references do not show or suggest all of the limitations of claim 16 and do not support a *prima facie* case for obviousness. Therefore, claim 16 is patentably distinct from the cited references.

Claims 17-21 and 36 have been canceled.

Also in contrast to the cited references, claim 44 includes:

obtaining an evaluation value indicative of the degree of achieving focus from said edges; and
obtaining the driving amount of said optical system on the basis of said evaluation value,
wherein said driving amount is changed according to the characteristics of said optical system, and wherein said driving amount is increased when the f-number of the optical system becomes larger.

As noted above with regard to claim 37, the cited references do not show or suggest controlling driving of the optical system during auto-focusing where the driving amount increases as the f-number is increased. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 44 and claim 44 is patentably distinct from the cited references.

Accordingly, it is respectfully requested that the rejection of claims 1-16, 29, 32 and 44 under 35 U.S.C. § 103(a) as being unpatentable over Ishii in view of Ohta, be reconsidered and withdrawn.

The rejection of claim 23 under 35 U.S.C. § 103(a), as being unpatentable over Ishii in view of Fiete, is respectfully traversed based on the following.

Fiete determines the best Δz for optimal focus by determining a maximum correlation $C_{max}(x)$ to an optimal edge for each edge in the focus range for each line. These correlation values are plotted, but the statistical outlier data points 44 are discarded (col. 4, line 63 – col. 5, line 11). The peak of the plot corresponds to the optimal focus (col. 5, lines 12-17).

Claim 23 is dependent upon claim 1 through claim 22. Claim 1 includes:

a calculator for detecting edges in an image in response to an instruction from said instructing part and calculating a first evaluation value indicative of the degree of achieving focus from said edges, and for detecting contrast of the said image and obtaining a second evaluation indicative of achieving focus from said contrast; and
a controller for driving said optical system while changing a driving speed on the basis of said first evaluation value and for determining an in-focus condition on the basis of said second evaluation value.

As noted above with regard to claim 22, Ishii does not show or suggest these limitations. Fiete also does not suggest using a first evaluation value based on edges and then using a second evaluation value based on contrast to determine the in-focus condition. Therefore, neither of the cited reference shows or suggests these limitations. Therefore, the cited references do not support a *prima facie* case for obviousness of claim 23 and claim 23 is patentably distinct from the cited references.

Accordingly, it is respectfully requested that the rejection of claim 23 under 35 U.S.C. § 103(a) as being unpatentable over Ishii in view of Fiete, be reconsidered and withdrawn.

CONCLUSION

Wherefore, in view of the foregoing amendments and remarks, this application is considered to be in condition for allowance, and an early reconsideration and a Notice of Allowance are earnestly solicited.


Application No. 10/020,051
Amendment dated April 21, 2006
Reply to Office Action of January 26, 2006

This Amendment does not increase the number of independent claims, does not increase the total number of claims, and does not present any multiple dependency claims. Accordingly, no fee based on the number or type of claims is currently due. However, if a fee, other than the issue fee, is due, please charge this fee to Sidley Austin LLP Deposit Account No. 18-1260.

If an extension of time is required to enable this document to be timely filed and there is no separate Petition for Extension of Time filed herewith, this document is to be construed as also constituting a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) for a period of time sufficient to enable this document to be timely filed.

Any other fee required for such Petition for Extension of Time and any other fee required by this document pursuant to 37 C.F.R. §§ 1.16 and 1.17, other than the issue fee, and not submitted herewith should be charged to Sidley Austin LLP Deposit Account No. 18-1260. Any refund should be credited to the same account.

Respectfully submitted,

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